

extensor longus digitorum. The woman who had used crutches all her life now walks upon the soles of both feet without the aid of apparatus. Her gait is not graceful for she has an ankylosis in both tarsi.

Case 5. Henry A., age 7. Paralytic equino varus, result of anterior poliomyelitis in the second year. June 11, 1908, division of tendo Achillis, redressment and fixation in plaster of paris for one month. Ext. hallucis and one-half of tibialis anticus attached to the shortened ext. longus digitorum. One-half of tendo Achillis grafted on peroneus longus and brevis. Plaster of paris dressing removed in four weeks; result good.

Case 6. Miss W., age 22. Paralytic equino varus. Tenotomy, forcible correction and immobilization with plaster of paris dressing for one month. Operation ext. hallucis transplanted on to the extensor longus digitorum. Tibialis anticus split and one-half grafted in the ext. longus digitorum. Stump of ext. hallucis attached to tibialis anticus. Tendo Achillis split and attached to peroneus longus and brevis. Excellent result.

Case 7. Fred Z., age 15. Paralytic equino varus. Varus very marked. Wedge removed from the middle of the tarsus. Tendo Achillis lengthened by oblique cut. One-half of tendo Achillis grafted on the tendons of the peronei. Result good.

Case 8. Age 7, paralytic equino varus. Tenotomy, redressment, and fixation with plaster of paris for one month. Operation, one-half of tendo Achillis transplanted into the tendons of the peronei. Result good.

### STRANGULATED HERNIA.\*

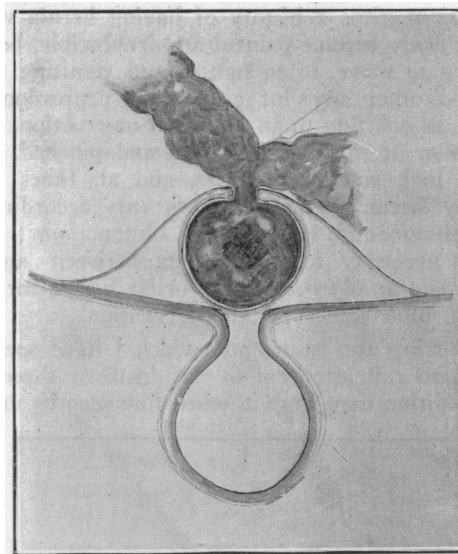
By A. MILES TAYLOR, M. D., San Francisco.

I have selected for my subject, Strangulated Hernia, its frequency among railroad men and the necessity of early operation in all forms of hernia. My object in bringing this most common subject before you to-day is to awake interest in one of the most neglected of all conditions demanding immediate surgical intervention. If herniae, both large and small, were diagnosed early and corrected through an operation, we would not be called upon so frequently at most any hour of the day or night to deal with this, one of the most grave conditions in surgery and one that few doctors in general practice have not had experience with.

Herniae of the abdominal viscera may be internal or external. Internal—where the displacement is into another cavity through some opening in the mesentery or omentum or adhesion. External—protrusion through the abdominal wall of the sac and its contents. The predisposing causes are imperfect closure of the umbilicus and inguinal and crural canals, weakened state of the mesentery and accumulations of fat in the peritoneum. The most frequent exciting cause is strain.

We have various forms of hernia, namely, inguinal, direct, and oblique; femoral, umbilical, obturator, sciatic, lumbar, bladder, retroperitoneal, diaphragmatic, epigastric, etc., but the one we meet most frequently is the oblique inguinal and the principal one I have taken up.

Before going any further, I wish to briefly refresh your memory with regard to the anatomy of the part, and the structures we must deal with.



Strangulated direct inguinal hernia, reduced en masse.

The first covering is the skin, the fascia with fat, aponeurosis of the external oblique muscle, which is attached to the symphysis pubis by one portion and reflected by the other from the anterior superior spine of the ilium to the spine of the os pubis, forming Poupart's ligament, being reinforced at the point of the external ring by the intercolumnar fibres. Underneath this, over the cord is the cremaster muscle. Below this fascia we find the spermatic cord consisting of the vas deferens, arteries, veins, nerves and lymphatic vessels. On the inner side we find the conjoined tendon formed by the internal oblique and transversalis aponeurosis and the peritoneum. The deep epigastric artery runs upward and inward from the external iliac to the center of the rectus abdominus muscle, passing vertically between the two rings lying between the transversalis fascia and the peritoneum, and must be avoided in operating. The more common forms of hernia descend externally to this vessel.

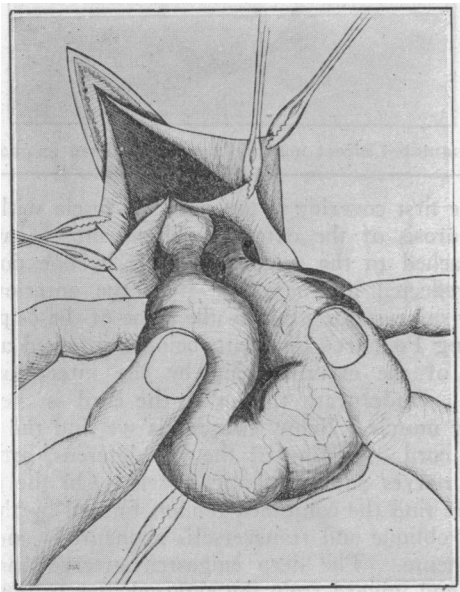
In giving these parts a few moments of study we can readily see how the different forms of hernia are formed and with what ease this condition can be corrected surgically. One can easily understand how in days of preaseptic surgery this condition was neglected, but under our present method of aseptic surgery there is no excuse for neglect. We must lay aside those old notions our predecessors had and methods they employed, namely taxis, truss, etc., sometimes reducing the strangulated portion en masse, and the poor patient dying of the gangrenous obstructed or ruptured bowel.

I wish to state before I go any further that this is an emergency condition and the only appropriate treatment is a surgical one. Our chief source of danger is septic absorption, and in order to avoid this the condition should be properly dealt with before the incarcerated bowel has ceased to be viable. Very frequently the patient is not brought to us until after repeated efforts at reduction; a long wait with his powers of resistance almost gone, not due to the gangrenous condition, but to sepsis.

\* Read at the Eighth Annual Meeting of the Pacific Association of Railway Surgeons, San Francisco, Aug., 1910.

As a rule the diagnosis is not a difficult one, for the patient gives a history of having hernia which has suddenly become painful and irreducible, bowels refusing to move, often nausea and vomiting ensuing and other signs of circulatory depression, all symptoms pointing to an intestinal obstruction. The expression of the face is drawn and pinched, with sallow look and sunken eyes, and at times is a clammy sweat. The symptoms vary according to the amount and duration of obstruction. It is hardly necessary to differentiate between an inflamed and an obstructed irreducible hernia for both require immediate surgical intervention.

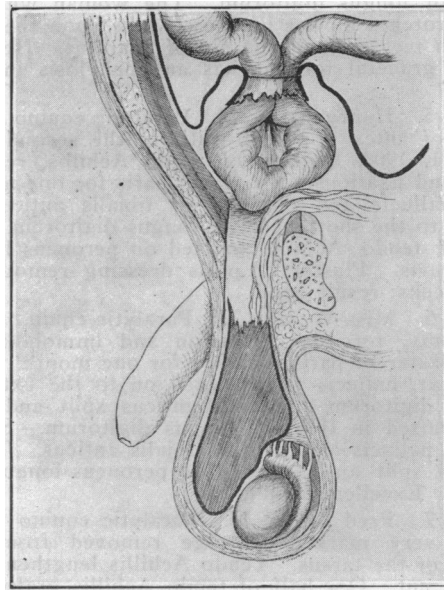
Reporting 200 cases upon which I have operated I wish to call attention to the death of three and the condition they were in when first seen by me.



Showing constricted bowel.

One was a man 39 years of age who had eaten canned tomatoes three days previously; he had what was supposed to be ptomaine poisoning and was treated with the usual cathartics given freely but with no result. Bowels did not move and patient grew worse. On the evening of the third day he entered the hospital, and upon examination I found the following condition: Temperature 97, pulse 150, stercoraceous vomiting, clammy sweat, tympanites, sunken eyes, greenish hue of skin, pinched countenance and at this time no pain. Yet the pain in the early part of the illness had been severe, especially at the point of hernia, in fact more or less all over the abdomen. The hernia which was an oblique inguinal had existed for some months, had been small and reducible; it was now a large irreducible mass. The skin and tissues about the seat of hernia were red and swollen. Upon opening the sac the constriction of the bowel was so high that a hernio-laparotomy was necessary in order to reach the constricted band. A greater portion of the bowel was paralyzed and the mesenteric veins studded with thrombi. The patient only lived a few hours after the operation.

The second case was that of a woman about 44 years of age, and almost similar in symptoms to the above, except she had not eaten canned food. This patient had suffered with an oblique inguinal hernia for years but for the past four days, previous to coming under my care, complained of pain at seat of hernia. The family physician was called in and

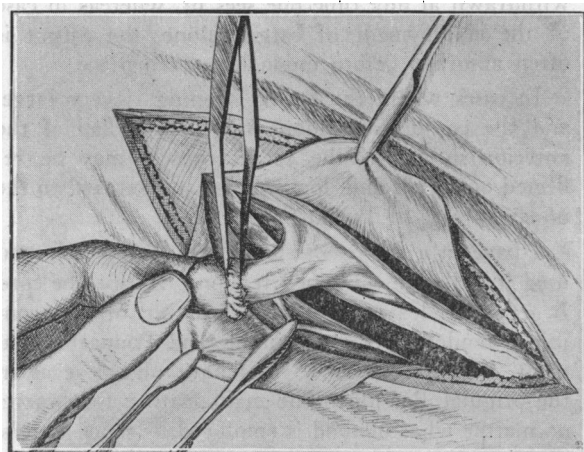


Strangulated oblique inguinal hernia, false reduction through circular rupture of sac.

recognized the strangulation, applied ice and gave cathartics with no result. Upon opening the sac and extending incision up several inches the bowel was found constricted at seat of hernia, also about eight inches above by a band. The bowel between these constrictions was gangrenous and this portion was removed. However the remaining bowel failed to regain its functions and the patient died on the following day.

The third case was that of a man 73 years of age weighing 260 pounds who had had a double inguinal hernia for twenty years. I saw this case fifty-two hours after strangulation on both sides. When I was called I was told by the attending physician that it was a strangulated inguinal hernia of the right side which he had tried to reduce and failed. Upon examination I found a strangulation of both sides. The hernia of the right side was 26 inches in circumference and extended 12 inches from the external ring to the bottom of the scrotum. That of the left side was about one-third the size of the right. The patient complained of severe pain in the left side and had suffered with severe pain in the right side which had ceased about twelve hours before. The temperature was 104, pulse 150, irregular and intermittent, respiration labored; all the symptoms pointed to a high degree of sepsis. The entire abdomen was distended and tympanitic. Upon opening the sac a large amount of sero-sanguinous fluid escaped. The sac was filled with omentum, caecal end of colon and small intestines, a loop of which was constricted by bands of adhesions. The omentum was inflamed and discolored in spots. The intestines were liberated, doused with hot salt solution and returned. The omentum was ligated and cut off. The sac was freed, cut off and transfixed and the wound closed by placing the cord below the conjoined tendon and Poupart's ligament. Drainage was made through counter opening in the side. In opening the sac of the left side there was an escape of a sero-sanguinous fluid. The sac was filled with small intestines which were adherent and ruptured at the ring. The incision was carried up, the intestines liberated, the rupture repaired with a few Lembert sutures, doused and replaced. The parts were closed and drained the same as the other side. The patient died of general sepsis the following day.

If these three cases had been operated upon as soon as the strangulation appeared, no doubt they



Freeing of sac.

would be living to-day. It is true that small femoral, sciatic and obturator hernias are often overlooked. One must not overlook torsion of the spermatic cord, strangulation of an undescended testicle, and suppurative lymphadenitis in the groin but if one dissects with caution there is no danger.

I wish to show you a few drawings illustrating how strangulated hernias are often reduced en masse.

You will observe that the hernial sac and its contents have been carried through the external ring without having changed their relations (Fig. 1), and the constriction persists. This is more common in the direct form of inguinal hernia in recent cases in which the sac is not adherent.

You will observe that the neck of the sac is torn loose from the rest of the sac and has been reduced with the bowel, the strangulation still being maintained (Fig. 2).

There are six principal points which must be observed in dealing with strangulated hernia.

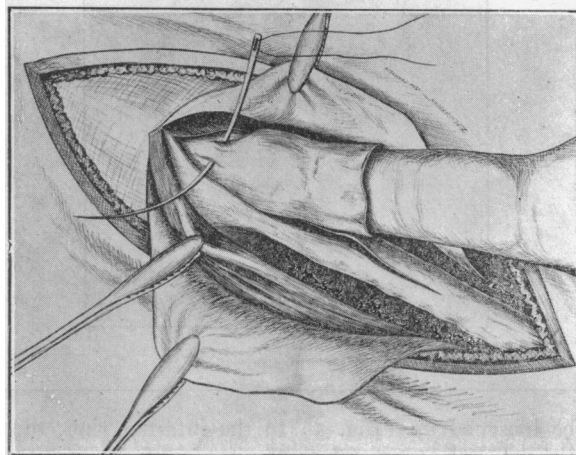
1. Incision and freeing of the sac. 2. Opening of the sac and care of the strangulation. 3. Care of the sac. 4. Care of the cord. 5. Plastic of abdominal wall. 6. After treatment.

The operation is not difficult if one is familiar with the parts. One need not fear cutting into the intestines, for before they can be reached the sac must have been opened which will be announced by the escape of a sero-sanguinous fluid. A close eye must always be kept on the bowel at the site of the constriction, which is most apt to be at internal ring but may be at any point of the canal (Fig. 3), at times high above the internal ring, demanding, besides a division as in ordinary hernia operations, a herniolaparotomy.

After thorough preparation of the field of operation, the incision through the skin and fat to the aponeurosis of the external oblique muscle is made, extending from the point of the internal ring to the spine of the pubes, and at times down to the middle of the scrotum.

After exposure of the aponeurosis it is incised the entire length from one ring to another. One can easily recognize it by the direction of its fibres and its shiny look. It is always well to hold aside these

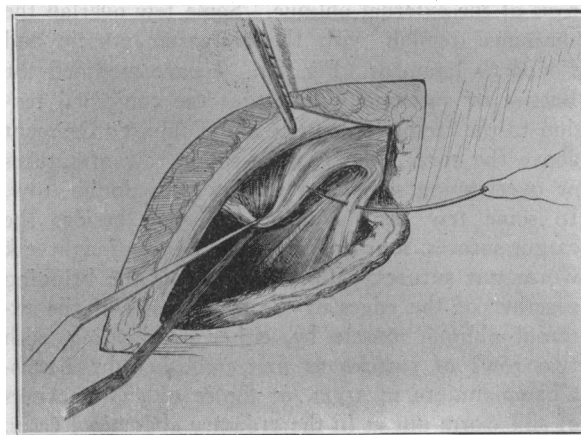
two surfaces with a pair of forceps. We now come to the sac which should be separated from the surrounding tissue, then opened to its full extent (Fig. 4), dividing the constricting bands. It is here that at times it is necessary to combine a laparotomy with a hernia operation, instead of passing a grooved director upward and dividing constrictions as is done by some surgeons.



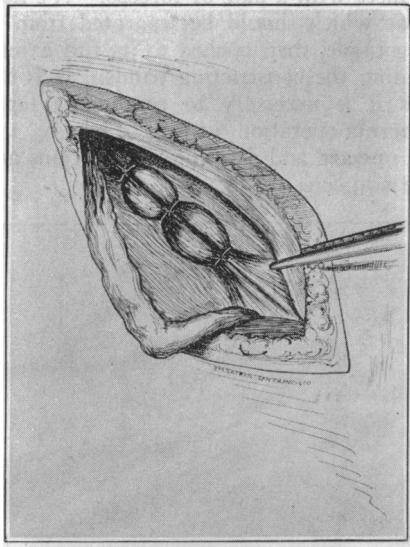
Care of sac.

The greatest care should be exercised in the examination of the bowels, never returning them unless the circulation is sufficiently reestablished, which can readily be accomplished by douching with hot normal salt solution and hot cloths. Should it be injured a few Lembert sutures may be all that is necessary, but one may be obliged to resect a portion or make an artificial anus. It is sometimes advisable to wrap the loop in moist gauze for ten to twelve hours and examine it again. An enterectomy is at times the ideal procedure since it eliminates a source of danger and permits of a radical cure, however none but those skilled in intestinal work should undertake it. An artificial anus can be made at the point of the hernia, or near McBurney's point, and the radical cure operation performed.

After the bowel has been reduced, the sac should



Suturing of conjoint tendon to Poupart's ligament, cord held aside.



Complete closure of floor.

be loosened up (Fig. 5) to the internal ring, then ligated and transfixed to the fascia of the external oblique muscle, always making sure that the sac is free of omentum and bowel. In case a radical cure is possible one must proceed to repair the floor, allowing enough space for the spermatic cord. This can easily be done by suturing the conjoined tendon to Poupart's ligament, overlapping same in some cases. This generally requires from five to six sutures (Fig. 6) which can be of special catgut. The cord, having been held aside, is now replaced (Fig. 7) and covered by the divided aponeurosis of the external oblique muscle, this being sutured as the layer below with catgut. The next step is bringing together of the skin. The technique I have just given is that described by Bassini a number of years ago but which has been somewhat modified by a number of surgeons.

Quite a few surgeons do not bring up the cord, merely bringing up the sac, transfixing same, then suturing together the fibres of the conjoined tendon and Poupart's ligament, also overlapping the aponeurosis of the external oblique. Some few overlap the conjoined tendon with the cremaster muscle and Poupart's ligament (Fig. 8). I have modified the Bassini by suturing with catgut the conjoined tendon to the cremaster muscle and Poupart's ligament above the cord, either with a single row of sutures or overlapping same and employing a double row. In some few cases I have employed, besides the catgut sutures, four or five double figure-of-eight silk worm gut sutures. The next step is the bringing together of the edges of the aponeurosis of the external oblique muscle by, either overlapping with two rows of sutures as first published by Lucas-Championnière in 1902, or figure of eight sutures of silk worm gut as in the ordinary abdominal cases.

My object in modifying the operation in this manner is that the silk worm gut sutures can be

withdrawn at any time one sees fit, whereas in case of the employment of catgut alone, the catgut is often absorbed before union has taken place.

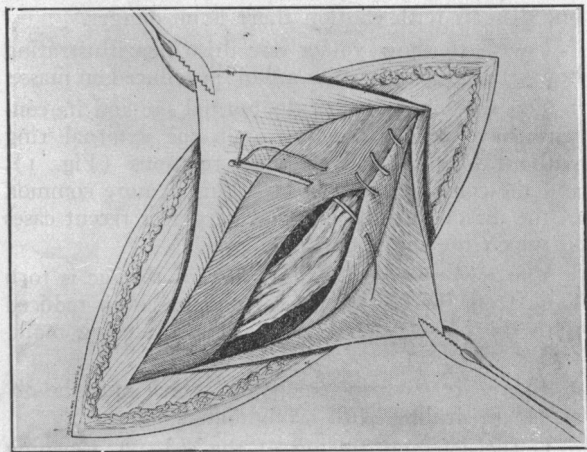
In cases where the hernia opening is very large, and the conjoined tendon atrophied, a flap of the anterior sheath of the rectus muscle may be reflected outwards and downwards, and sutured to the under surface of Poupart's ligament.

I have in a few cases split the rectus muscle and used it with the conjoined tendon. As for the cord I generally leave it below the layer of the conjoined tendon, cremaster muscle and Poupart's ligament, but in some few cases have placed it as in the original Bassini. The main feature to observe, no matter what method is employed, is strict asepsis.

The Kocher operation is not applicable in strangulated cases.

The skin can be brought together by Michel clamps, silk worm gut or horse hair.

One must not lose sight of the complications, one of the most frequent being adhesions between the



Cord placed posterior to conjoined tendon and Poupart's ligament.

bowel, omentum and sac. This requires patience and careful work. All raw surfaces must be taken care of. The bladder being near at hand may be cut into if care is not used. The appendix and most any abdominal organ may be found in the sac and must be dealt with accordingly.

The next most frequent after the form just discussed is the umbilical form, which is much easier to deal with. The femoral variety is even more urgent than the inguinal for gangrene is liable to develop earlier.

I recently operated on a case of femoral hernia that had become strangulated. The only point I wish to bring out in this case is, that this man had been examined and fitted upon two occasions with a truss for inguinal hernia, which he was wearing when he came to me, but which aggravated instead of benefited the condition. The parts were exposed by an incision parallel to and about one-third of an

inch below Poupart's ligament. A large sac was found, constructed a little below Poupart's ligament, and filled with omentum and bowel. The sac above the constriction was very large. In this case I returned the bowel, removed the omentum, transfixed the sac and brought the parts together.

In the femoral variety, besides suturing the Pectineus muscle and fascia to Poupart's ligament with mattress stitch, I use about three figure of eight silk worm gut sutures removing them in about three or four weeks. Care must be taken not to cut into the femoral vein which lies external to the hernial opening. The sac is dealt with as in inguinal hernias, namely, transfixed to Poupart's ligament.

In obturator hernia it will be necessary to expose the sac by an incision extending from the spine of the pubes downward three or four inches, about a finger's breadth internal to the femoral artery, the pelvis being elevated and thigh flexed and adducted.

The after treatment is the same as in ordinary abdominal cases. I let my patients up in about two weeks and have them wear some sort of support for several months. In this matter of hernia I feel like Murphy does in appendicitis; it is a constant source of danger and one can never know at what moment it may become strangulated, therefore all cases should be operated as soon as a diagnosis is made.

#### THE LATE DR. G. L. SIMMONS, OF SACRAMENTO.

Gustavus Lincoln Simmons was born in Hingham, Mass., March 13, 1832. On his father's side he was a lineal descendant of Moses Simmons, a member of the Pilgrim Colony by the ship "Fortune" following the "Mayflower" in 1621 and, on his mother's side, of Benjamin Lincoln, who came from Hingham, England, and founded Hingham, Mass. He received his preliminary education in the public schools and Derby Academy of his native town. When but a boy of 17, in 1849, he sailed from Boston to California by the brig "Curacoa," which foundered on the coast of the Azores, but finally reached San Francisco some nine months later, in 1850. He remained but a short time in San Francisco and then came to Sacramento, which was his home continuously until his death.

As a clerk he entered the old Boston Drug Store which was then situated on the north side of J street between Front and Second. Cholera and gambling were at their height at that time and gave him abundant opportunity to make observations both medical and surgical. He immediately became interested in medicine and in 1853 took passage from San Francisco by the ship "Yankee Blade" which was wrecked in the Santa Barbara Channel where he lost his library and other belongings. A part of these books were recovered some 40 years later and are still in possession of his family. He finished his medical education at Harvard University in 1855 and returned to California in 1856, beginning practice in Sacramento at once.

He made three trips to Europe for the study of his profession in 1866, 1871 and 1896. He was a charter member and very important factor in the

organization of the Sacramento Society for Medical Improvement which was established and held its first meeting on March 17, 1868. Of this Society he was a continuous, active, loyal member for more than 42 years. The records of the Society will probably show that no other member during this long period has been more regular in attendance of its monthly meetings or more active in its deliberations. He allowed no other business or pleasure to interfere with what he believed to be his duty to the Society and to the Medical Profession.

He was one of the founders of the Medical Society of the State of California, of which particularly in its earlier history when he had more time and strength, he was an active, efficient and prominent member. In 1896 he was elected its president in which capacity he served the Society with his usual zeal and efficiency.

He was a member of the Mass. State Medical Society and of the American Medical Association, and Chairman of the Committee of Arrangements at its meeting in San Francisco in 1871. He contributed numerous papers to the medical press, read either before the Sacramento Society for Medical Improvement or before the State Society. In 1859 and 1860 he was County Physician and did the surgery for the County Hospital for some time after the election of his successor, Dr. Donaldson.

In his earlier life he did a great deal of surgery, wiring the tendo-Achillis for the first time successfully, opening the knee joint successfully under alcohol before the days of Listerism, ligating the carotid, doing splenectomy, ovariectomy and all of the operations of that time with more than usual success. He ascribed his results largely to the use of alcohol in cleansing the skin preparatory for operation and after the vogue of aseptic and antiseptic surgery often spoke of the value of alcohol as an antiseptic. Subsequent observation has substantiated his claims.

He was Surgeon Major before and during the Modoc War; member of the City Board of Health for a long period; Commissioner in Lunacy for more than 20 years; United States Pension Surgeon; the first Secretary of the City Board of Education, acting as School Superintendent; one of the founders and presidents of the City Free Library; an active member of various improvement associations and other civic bodies and president of the Board of Trustees of the Marguerite Home.

He founded and long maintained almost unaided, the little hospital known as Ridge Home and later merged into the present Sisters' Hospital at 23rd and R streets. He was chiefly instrumental in founding the City and County Dispensary and was an active member of the Board of Freeholders which framed the present charter of the City of Sacramento.

His activities as a citizen were varied, numerous and efficient. More than thirty years ago he gave the question of water supply a very thorough study both in general and in its application to the City of Sacramento. He became an early, consistent and persistent advocate of a well supply.